

DC/DC Converter  
 AC/DC Inverters  
 Delay-Lines  
 Pulsetransformers  
 Burst & Surge Filters  
 Harmonic Filters  
 Switching Power Supplies

Am Malfinger Steig 13  
 86920 Denklingen/Obb.  
 Germany  
 Tel.: 08243-9693-0  
 Fax: 08243-9693-33  
 www.floeth-electronic.com



Stand: 12/07

Wide input range 1:2  
 Case style: DIP24

# COMMERCIAL DC/DC Converters PWM - regulated

2,2 Watt  
 Series: CW2

**Electrical specifications:**

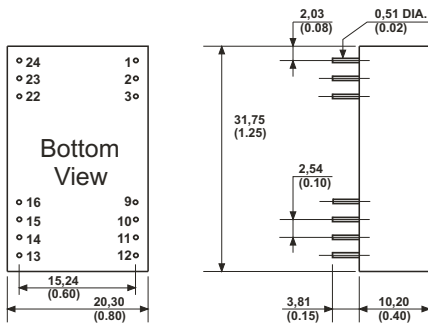
Input voltage: wide 1:2  
 Output voltage accuracy: +/- 1% max.  
 Line regulation: +/- 0,2%  
 Load regulation: +/- 0,5% (20% to 100% Load)  
 Efficiency: up to 84%  
 Output Ripple & Noise: 50mVp-p max.  
 Short circuit protection: continuous

Operating temperature: -40°C to +85°C  
 Isolation voltage: min. 1000V DC  
 Optional Part-No.: /H2 min. 2000V DC  
 Part-No.: /H3 min. 3000V DC  
 (/H2; /H3 only available with Pinning "A" and "C")  
 Case material: black plastic  
 Optional Part-No.: /M metal case  
 Part-No.: /SMD SMD-package  
 (/M; /SMD Isolation voltage max. 2kVDC)

**CAUTION: NO INPUT POLARITY CHANGE ALLOWED!**

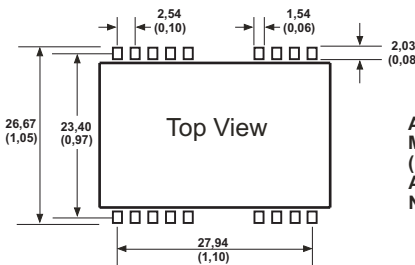
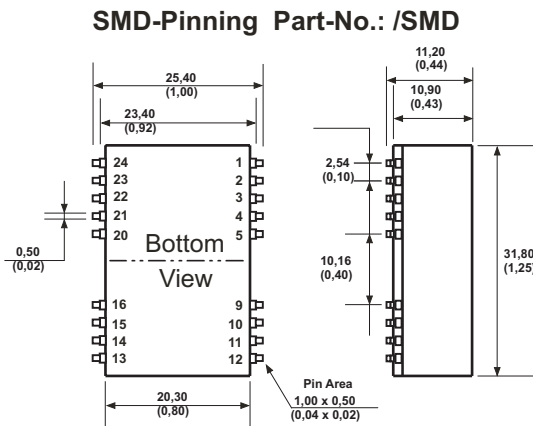
Part - No. Single Output	Input Voltage DC	Output Voltage DC	Output current	Part - No. Dual Output	Input Voltage DC	Output Voltage DC	Output current
CW2-xx03,3	5V (4,5-9V) 12V (9-18V) 24V (18-36V) 48V (36-72V)	3,3V	600mA	CW2-xx03,3D	5V (4,5-9V) 12V (9-18V) 24V (18-36V) 48V (36-72V)	±3,3V	±300mA
CW2-xx05		5V	440mA	CW2-xx05D		± 5V	±220mA
CW2-xx09		9V	244mA	CW2-xx09D		± 9V	±122mA
CW2-xx12		12V	183mA	CW2-xx12D		±12V	± 91mA
CW2-xx15		15V	146mA	CW2-xx15D		±15V	± 73mA

**Any other output voltages available**



PIN CONNECTION:						
PIN	SINGLE	DUAL	SINGLE A	DUAL A	SINGLE C	DUAL C
1	+Vin	+Vin			+Vin	+Vin
2	NP	-Vout	-Vin	-Vin	+Vin	+Vin
3	NP	COM	-Vin	-Vin		
9			NC	COM		
10	-Vout	COM			NC	COM
11	+Vout	+Vout	NC	-Vout	NC	COM
12	-Vin	-Vin			-Vout	NC
13	-Vin	-Vin			+Vout	-Vout
14	+Vout	+Vout	+Vout	+Vout		
15	-Vout	COM			NC	+Vout
16			-Vout	COM		
22	NP	COM	+Vin	+Vin		
23	NP	-Vout	+Vin	+Vin	-Vin	-Vin
24	+Vin	+Vin			-Vin	-Vin

Add "A" to the end of Partnumber.  
 For example CW2-2405A/H3 2,2Watt.



ALL DIMENSIONS IN MM (INCHES)  
 MILLIMETERS +/- 0,25mm  
 (INCHES +/-0,01")  
 All pins on a 2,54mm pitch  
 Note: NP = No pin; NC = No connection;  
 Dot denotes pin 1

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Stand: 12/07

Wide input range 1:2  
 Case style: DIP24

# COMMERCIAL DC/DC Converters PWM - regulated

3 Watt  
 Series: CW2

**Electrical specifications:**

Input voltage: wide 1:2  
 Output voltage accuracy: +/- 1% max.  
 Line regulation: +/- 0,2%  
 Load regulation: +/- 0,5% (20% to 100% Load)  
 Efficiency: up to 84%  
 Output Ripple & Noise: 50mVp-p max.  
 Short circuit protection: continuous  
 Operating temperature Uin = 5V: -40°C to +80°C  
 Uin = 12V; 24V; 48V: -40°C to +85°C

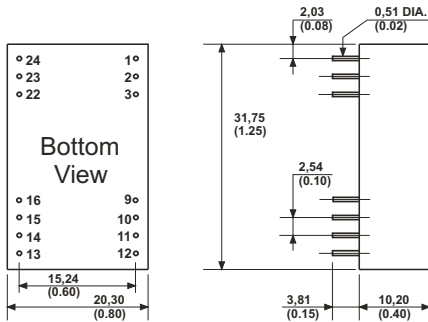
Isolation voltage: min. 1000V DC  
 Optional Part-No.: /H2 min. 2000V DC  
 Part-No.: /H3 min. 3000V DC  
 Part-No.: /H4 min. 4000V DC  
 Part-No.: /H5 min. 5000V DC  
 Part-No.: /H6 min. 6000V DC  
 (/H2 - /H6 only available with Pinning "A" and "C")

Case material: black plastic  
 Optional Part-No.: /M metal case  
 Part-No.: /SMD SMD-package  
 (/M; /SMD Isolation voltage max. 2kVDC)

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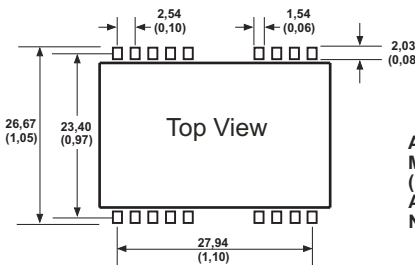
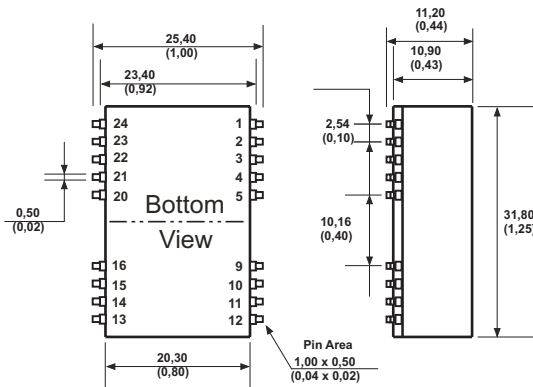
Part - No. Single Output	Input Voltage DC	Output Voltage DC	Output current	Part - No. Dual Output	Input Voltage DC	Output Voltage DC	Output current
CW2-xx03,3	5V (4,5-9V) 12V (9-18V) 24V (18-36V) 48V (36-72V)	3,3V	900mA	CW2-xx05D CW2-xx09D CW2-xx12D CW2-xx15D	5V (4,5-9V) 12V (9-18V) 24V (18-36V) 48V (36-72V)	± 5V	±300mA
CW2-xx05		5V	600mA			± 9V	±165mA
CW2-xx09		9V	330mA			± 12V	±125mA
CW2-xx12		12V	250mA			± 15V	±100mA
CW2-xx15		15V	200mA				

**Any other output voltages available**



PIN CONNECTION:						
PIN	SINGLE	DUAL	SINGLE A	DUAL A	SINGLE C	DUAL C
1	+Vin	+Vin			+Vin	+Vin
2	NP	-Vout	-Vin	-Vin	+Vin	+Vin
3	NP	COM	-Vin	-Vin		
9			NC	COM		
10	-Vout	COM			NC	COM
11	+Vout	+Vout	NC	-Vout	NC	COM
12	-Vin	-Vin			-Vout	NC
13	-Vin	-Vin			+Vout	-Vout
14	+Vout	+Vout	+Vout	+Vout		
15	-Vout	COM			NC	+Vout
16			-Vout	COM		
22	NP	COM	+Vin	+Vin		
23	NP	-Vout	+Vin	+Vin	-Vin	-Vin
24	+Vin	+Vin			-Vin	-Vin

**SMD-Pinning Part-No.: /SMD**



Add "A" to the end of Partnumber.  
 For example CW2-2405A/H3 3Watt.

ALL DIMENSIONS IN MM (INCHES)  
 MILLIMETERS +/- 0,25mm  
 (INCHES +/-0,01")  
 All pins on a 2,54mm pitch  
 Note: NP = No pin; NC = No connection;  
 Dot denotes pin 1

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Stand: 12/07

Wide input range 1:2  
 Case style: DIP24

# COMMERCIAL DC/DC Converters PWM - regulated

5 Watt  
 Series: CW2

**Electrical specifications:**

Input voltage: wide 1:2  
 Output voltage accuracy: +/- 1% max.  
 Line regulation: +/- 0,2%  
 Load regulation: +/- 0,5% (20% to 100% Load)  
 Efficiency: up to 84%  
 Output Ripple & Noise: 50mVp-p max.  
 Short circuit protection: continuous  
 Operating temperature: -40°C to +75°C

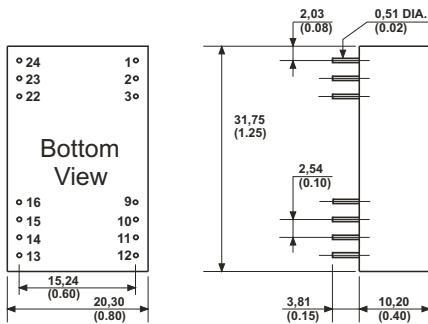
Isolation voltage: min. 1000V DC  
 Optional Part-No.: /H2 min. 2000V DC  
 Part-No.: /H3 min. 3000V DC  
 Part-No.: /H4 min. 4000V DC  
 Part-No.: /H5 min. 5000V DC  
 Part-No.: /H6 min. 6000V DC  
 (/H2 - /H6 only available with Pinning "A" and "C")

Case material: black plastic  
 Optional Part-No.: /M metal case  
 Part-No.: /SMD SMD-package  
 (/M; /SMD Isolation voltage max. 2kVDC)

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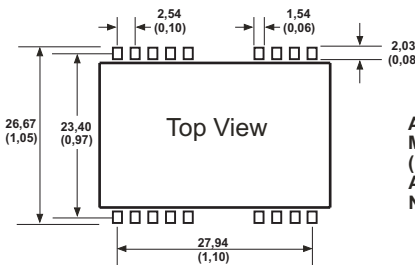
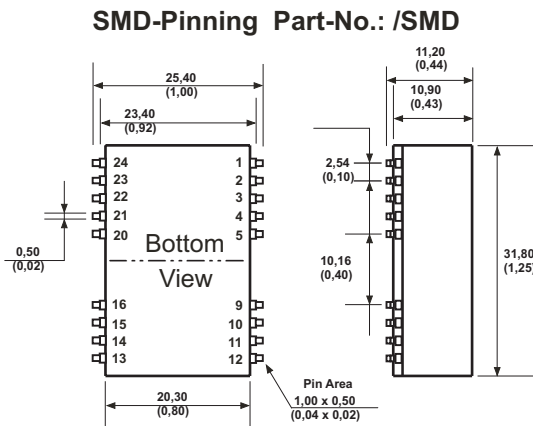
Part - No. Single Output	Input Voltage DC	Output Voltage DC	Output current	Part - No. Dual Output	Input Voltage DC	Output Voltage DC	Output current
CW2-xx03,3	12V (9-18V) 24V (18-36V) 48V (36-72V)	3,3V	1200mA	CW2-xx05D CW2-xx09D CW2-xx12D CW2-xx15D	12V (9-18V) 24V (18-36V) 48V (36-72V)	± 5V	±500mA
CW2-xx05		5V	1000mA			± 9V	±278mA
CW2-xx09		9V	556mA			±12V	±210mA
CW2-xx12		12V	420mA			±15V	±170mA
CW2-xx15		15V	340mA				

**Any other output voltages available**



PIN CONNECTION:						
PIN	SINGLE	DUAL	SINGLE A	DUAL A	SINGLE C	DUAL C
1	+Vin	+Vin			+Vin	+Vin
2	NP	-Vout	-Vin	-Vin	+Vin	+Vin
3	NP	COM	-Vin	-Vin		
9			NC	COM		
10	-Vout	COM			NC	COM
11	+Vout	+Vout	NC	-Vout	NC	COM
12	-Vin	-Vin			-Vout	NC
13	-Vin	-Vin			+Vout	-Vout
14	+Vout	+Vout	+Vout	+Vout		
15	-Vout	COM			NC	+Vout
16			-Vout	COM		
22	NP	COM	+Vin	+Vin		
23	NP	-Vout	+Vin	+Vin	-Vin	-Vin
24	+Vin	+Vin			-Vin	-Vin

Add "A" to the end of Partnumber.  
 For example CW2-2405A/H3 5Watt.



ALL DIMENSIONS IN MM (INCHES)  
 MILLIMETERS +/- 0,25mm  
 (INCHES +/-0,01")  
 All pins on a 2,54mm pitch  
 Note: NP = No pin; NC = No connection;  
 Dot denotes pin 1

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Wide input range 2:1  
 Case style: DIP24

# COMMERCIAL DC/DC Converters PWM - regulated ISOLATED OUTPUT

3 Watt / 5 Watt  
 Series: CW2

### Electrical specifications:

Input voltage: wide 2:1  
 Output voltage accuracy: max. +/- 2%  
 Line regulation: max. +/- 0,4%  
 Load regulation: max. +/- 0,6% (20% to 100% Load)  
 Operating temperature Uin = 5V: -40°C to +80°C  
 Uin = 12V; 24V; 48V: -40°C to +85°C

Efficiency: up to 82%  
 Output Ripple & Noise: typ. 50mVp-p  
 Short circuit protection: continuous / Auto Restart  
 Isolation voltage I/O: min. 2000V DC  
 (tested for 1 second min.) O/O: min. 500V DC  
 Case material: black plastic  
 Part-No. /M: metal case  
 Part-No. /SMD: SMD-package

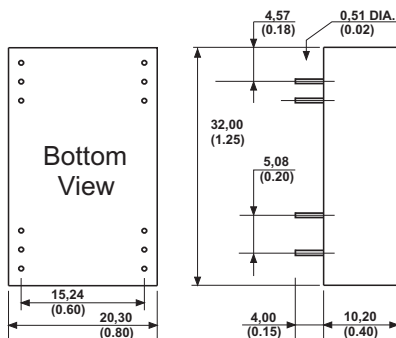
**CAUTION: NO INPUT POLARITY CHANGE ALLOWED!**

\* OUT1: (Uout = 5V) min. Load 100mA to supply OUT2 well  
 (Uout = 9V; 12V; 15V) min. Load 20% to supply OUT2 well

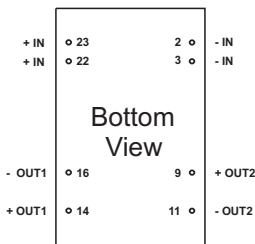
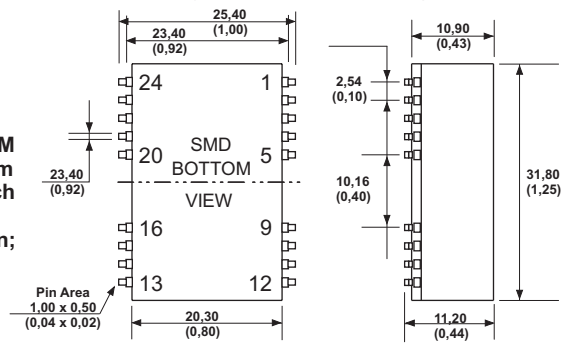
Part - No. Dual Output	Input Voltage DC	Output 3 Watt				Output 5 Watt			
		Output 1 *		Output 2		Output 1 *		Output 2	
		Output Voltage DC	Output Current	Output Voltage DC	Output Current	Output Voltage DC	Output Current	Output Voltage DC	Output Current
CW2-xx0505A CW2-xx0509A CW2-xx0512A CW2-xx0515A	05V (4,5-9V)	5V	300mA	5V	300mA	5V	500mA	5V	500mA
CW2-xx0905A CW2-xx0909A CW2-xx0912A CW2-xx0915A		9V	167mA	9V	167mA	9V	277mA	9V	277mA
CW2-xx1205A CW2-xx1209A CW2-xx1212A CW2-xx1215A		12V	125mA	12V	125mA	12V	208mA	12V	208mA
CW2-xx1505A CW2-xx1509A CW2-xx1512A CW2-xx1515A		15V	100mA	15V	100mA	15V	167mA	15V	167mA

Input voltage range 4:1 (9-36V & 18-72V) also available

Any other output voltages available

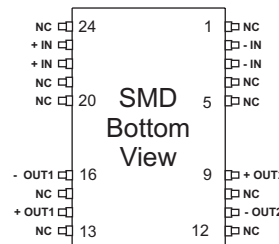


ALL DIMENSIONS IN MM  
 MILLIMETERS +/- 0,25mm  
 All pins on a 2,54mm pitch  
 Note: NP = No pin;  
 NC = No connection;  
 Dot denotes pin 1



**PIN CONNECTION:**  
 Dual Separate

Any other  
 Pin-Connection  
 on request



Part-No.: /SMD  
 Example:  
 CW2-241515A/SMD 3W

Specification may be changed without notice  
 please contact office for verification

We can offer EMC - Filter  
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Wide input range 1:2  
 Case style: DIP24

# COMMERCIAL DC/DC Converters PWM - regulated

8 Watt  
 Series: CW2

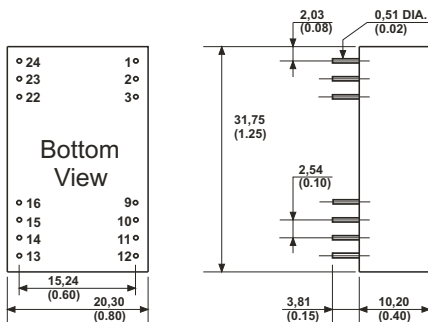
**Electrical specifications:**

Input voltage:	wide 1:2	Output Ripple & Noise:	max.50mVp-p
Output voltage accuracy:	max. +/- 1,2%	Short circuit protection:	continuous, automatic recovery
Minimum Load:	10% of Full Load	Isolation voltage:	min. 2000V DC
Line regulation:	max. +/- 1,0%	Optional Part-No.: /H3	min. 3000V DC
Load regulation:	max. +/- 2,0% (25% to 100% Load)	Remote ON / OFF Control:	
Efficiency:	up to 87%	On - Control:	3,5V < Vr < 12V or open
Operating temperature Uin = 5V:	-40°C to +75°C	Off - Control:	0V < Vr < 1,2V or short
Uin = 12V; 24V; 48V:	-40°C to +85°C	Case material:	Nickel-coated copper
Over Load Protection		Optional Part-No.: /M	metal case
% of FL at nominal input:	150% typ	Part-No.: /SMD	SMD-package
Isolation Capacitance:	1200pF max.		

**CAUTION: NO INPUT POLARITY CHANGE ALLOWED!**

Part - No. Single Output	Input Voltage DC	Output Voltage DC	Output current	Part - No. Dual Output	Input Voltage DC	Output Voltage DC	Output current
CW2-xx03,3A	5V (4,5-9V)	3,3V	1600mA	CW2-xx05DA	5V (4,5-9V)	± 5V	±800mA
CW2-xx05A	12V (9-18V)	5V	1600mA	CW2-xx12DA	12V (9-18V)	±12V	±333mA
CW2-xx12A	24V (18-36V)	12V	666mA	CW2-xx15DA	24V (18-36V)	±15V	±267mA
CW2-xx15A	48V (36-72V)	15V	533mA				

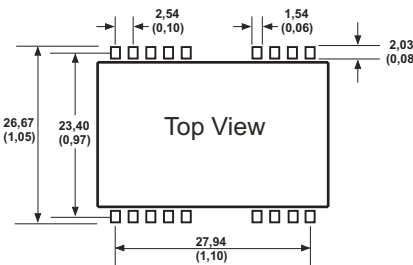
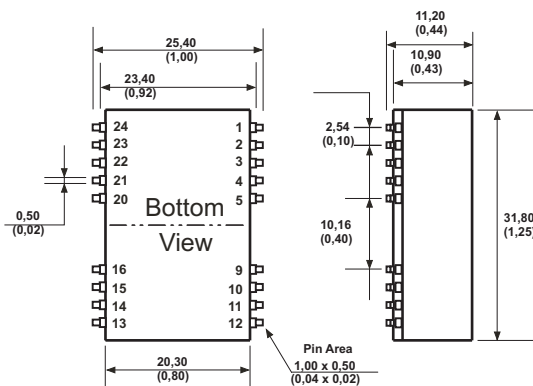
**Any other output voltages available**



ALL DIMENSIONS IN MM (INCHES)  
 MILLIMETERS +/- 0,25mm  
 (INCHES +/-0,01")  
 All pins on a 2,54mm pitch  
 Note: NP = No pin; NC = No connection;  
 Dot denotes pin 1

PIN CONNECTION:		
PIN	SINGLE A	DUAL A
1	Remote On/Off	
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	COM
10		
11	NC	-Vout
12		
13		
14	+Vout	+Vout
15		
16	-Vout	COM
22	+Vin	+Vin
23	+Vin	+Vin
24		

**SMD-Pinning Part-No.: /SMD**



Part-No.: /H3  
 Example CW2-2405A/H3 8W

Part-No.: /SMD  
 Example:  
 CW2-2415A/SMD 8W

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